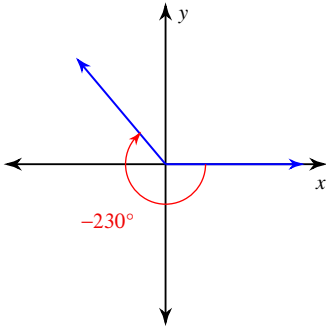


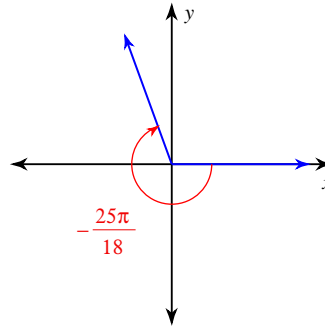
Coterminal Angles and Reference Angles

Find the reference angle.

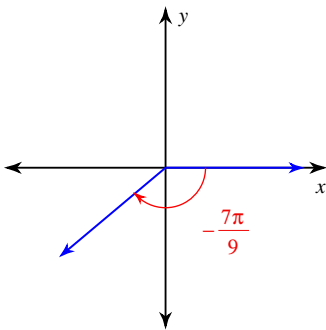
1)



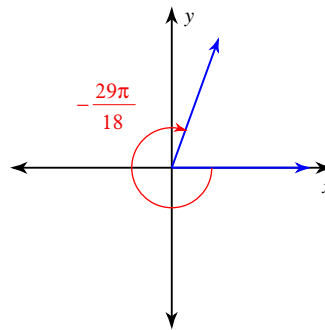
2)



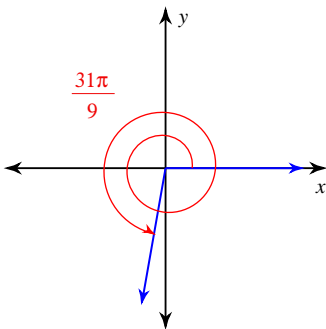
3)



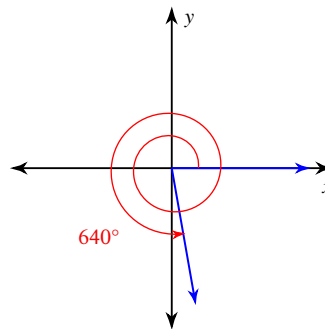
4)



5)



6)



7) -510°

8) $-\frac{19\pi}{18}$

9) $-\frac{13\pi}{12}$

10) -250°

State if the given angles are coterminal.

11) $185^\circ, -545^\circ$

12) $\frac{17\pi}{36}, \frac{161\pi}{36}$

Find a coterminal angle between 0° and 360° .

13) -330°

14) -435°

15) 640°

16) -442°

Find a coterminal angle between 0 and 2π for each given angle.

17) $\frac{11\pi}{3}$

18) $-\frac{35\pi}{18}$

19) $\frac{15\pi}{4}$

20) $-\frac{19\pi}{12}$

Find a positive and a negative coterminal angle for each given angle.

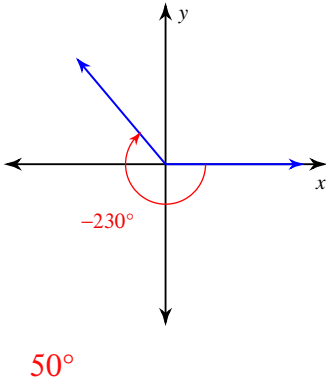
21) $\frac{5\pi}{4}$

22) $\frac{25\pi}{36}$

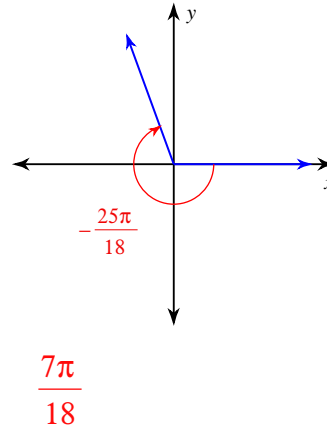
Coterminal Angles and Reference Angles

Find the reference angle.

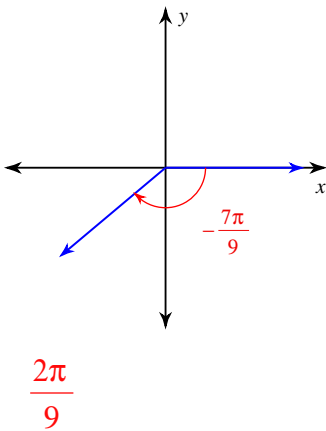
1)



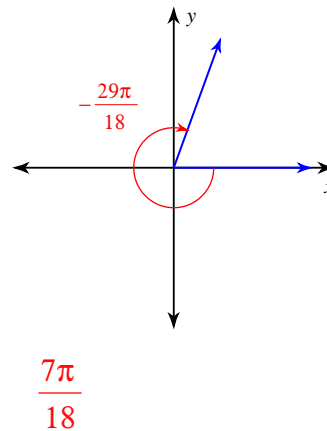
2)



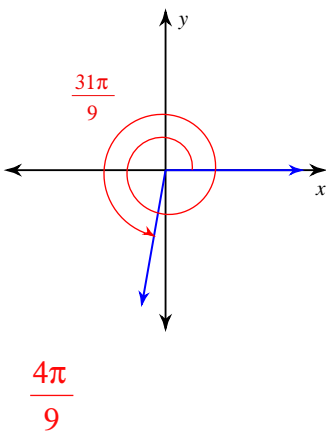
3)



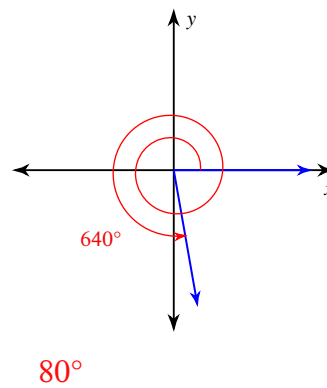
4)



5)



6)



7) -510°
 30°

8) $-\frac{19\pi}{18}$
 $\frac{\pi}{18}$

9) $-\frac{13\pi}{12}$
 $\frac{\pi}{12}$

10) -250°
 70°

State if the given angles are coterminal.

11) $185^\circ, -545^\circ$
No

12) $\frac{17\pi}{36}, \frac{161\pi}{36}$
Yes

Find a coterminal angle between 0° and 360° .

13) -330°
 30°

14) -435°
 285°

15) 640°
 280°

16) -442°
 278°

Find a coterminal angle between 0 and 2π for each given angle.

17) $\frac{11\pi}{3}$
 $\frac{5\pi}{3}$

18) $-\frac{35\pi}{18}$
 $\frac{\pi}{18}$

19) $\frac{15\pi}{4}$
 $\frac{7\pi}{4}$

20) $-\frac{19\pi}{12}$
 $\frac{5\pi}{12}$

Find a positive and a negative coterminal angle for each given angle.

21) $\frac{5\pi}{4}$

22) $\frac{25\pi}{36}$

$\frac{13\pi}{4}$ and $-\frac{3\pi}{4}$

$\frac{97\pi}{36}$ and $-\frac{47\pi}{36}$